U.S. Department
of Transportation

United States
Coast Guard

Commandant
United States Coast Guard

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COMDTINST 4105.3

5 NOV 1991

COMMANDANT INSTRUCTION 4105.3

Subj: Logistic Support Analysis

Ref: (a)   Acquisition and Management of Integrated Logistics Support (ILS) for Coast Guard
           Systems and Equipments, COMDTINST 4105.2 (series)
     (b)   Systems Acquisition Manual, COMDTINST 4150.2 (series)
     (c)   Logistic Support Analysis, MIL-STD-1388-1A (NOTAL)
     (d)   Logistic Support Analysis Record, MIL-STD-1388-2B (NOTAL)
     (e)   Standardization Program (Coast Guard), COMDTINST 4200.20

1.   **PURPOSE.** Reference (a) requires project managers to consider Logistic Support Analysis (LSA)
     for major Coast Guard acquisition projects. This instruction provides guidance on the application of
     LSA to both major and non-major acquisition projects (excludes construction or other
     improvements to real property). LSA in the Coast Guard:

     a.   Allows support considerations to influence system design.

     b.   Identifies and specifies logistic support requirements.

     c.   Eliminates duplication of analysis.

     d.   Assesses the supportability of the system.

     e.   Facilitates life cycle management of the system.

2. **BENEFITS OF LSA.** Depending on the nature of the acquisition project, LSA provides various benefits. The following are some examples:

    a. For major projects that are primarily design and development, LSA will reduce the risk of fielding a nonsupportable system.

    b. For major projects that are primarily an integration of existing systems and equipment, LSA will assess the supportability of the system and identify and provide the data required to establish the required support.

    c. For less complex major and minor projects, LSA will preclude duplication of analysis (both in the project and among the affiliated programs). LSA will also help integrate various program requirements (e.g., provisioning, safety, preventive maintenance).

    d. For minor projects, LSA will provide a structured outline of all support issues that must be considered in an acquisition.

    e. For all projects, operational and support program managers will benefit from early consideration of life cycle support issues. In addition, analysis and/or data gathered by LSA will be useful throughout the life cycle.

3. **DISCUSSION.** Reference (b) discusses LSA and requires the author of each Integrated Logistics Support Plan (ILSP) to assign various tasks to the matrix organization. Reference (c) defines LSA and describes a series of analytical tasks designed to endure supportability issues are considered. Reference (d) provides information about the data base required to capture the analytical data.

3. a. <u>Logistic Support Analysis</u>. Reference (c) requires that tasks be tailored to meet project requirements. Tailoring is the process for evaluating LSA tasks to determine which tasks should be used and how they can be applied to provide the minimum needs of the Government. Many LSA tasks are currently accomplished during the preparation of more traditional Coast Guard acquisition documents. Likewise, several LSA tasks are beneficial in preparing certain acquisition documents. For example, LSA Task 201 (Use Study) and the Mission Needs Statements are closely related. Often completing one LSA task may eliminate requirements for other analysis required before fielding the system (e.g., Task 401 (Task Analysis) may eliminate duplicate analysis by maintenance planning, provisioning, and training ILS elements).

   b. <u>Logistic Support Analysis Record (LSAR)</u>. The LSAR is the data base used to capture the data from the analysis conducted in LSA. LSAR was originally designed as a set of paper reports. In 1991, reference (d) was changed to incorporate a relational data base. This data base can be readily updated and manipulated as desired. Numerous LSAR software packages and contractors are available. Care should be taken to ensure software complies with the requirements of reference (d). For a non-major project a simple spreadsheet can be an effective alternative for LSAR. The LSAR data base is the centralized and authoritative file of required supportability data. All interested parties must have access to the same data so that engineering, manpower, safety, provisioning and other analysis can be done concurrently.

4. **PROCEDURES.** References (c) and (d) are designed to be tailored to the project under consideration. Major projects may require less tailoring than smaller projects. The following guidelines are provided to assist in this tailoring. Additional tailoring aids may be found in reference (d) and the enclosures to this instruction.

   a. Determine if a formal LSA will be conducted. If it is likely that substantial portions of a formal LSA will be contracted, many of the tasks identified as optional or "in house" in enclosure (1) must be included as part of this formal analysis. Information developed in one task is used as input for another in the formal LSA process.

   b. Determine if required data is already available. If so, use existing data.
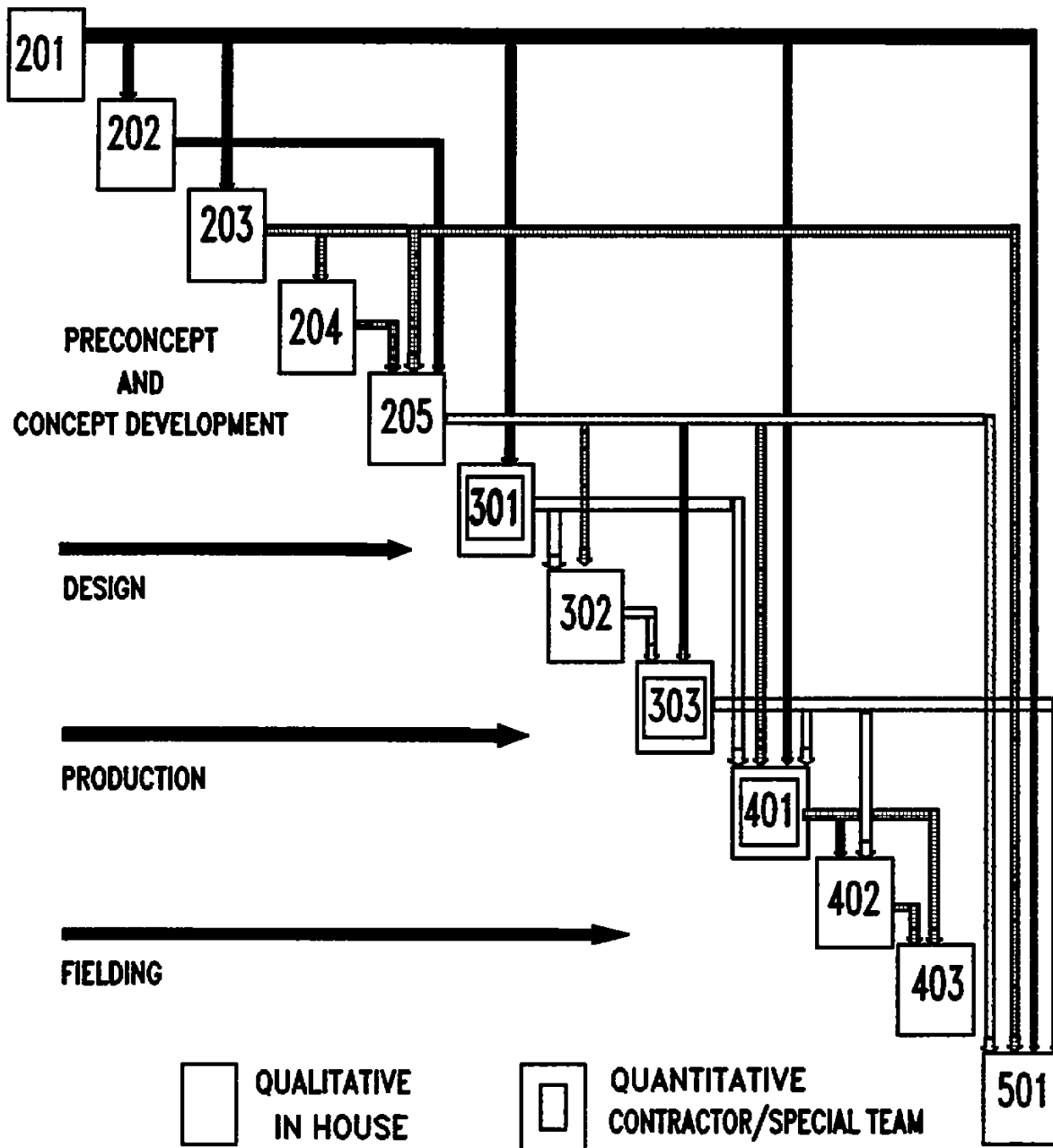
4.   c.   Determine if specific data is required. If the data is not required directly or as input to another task, the analysis may be omitted.

       d.   If more than one MIL-STD or analytical technique is available to complete the analysis, choose the process most economical, efficient, and compatible to those involved in the project. The Reliability and Maintainability, Configuration Management, Safety, Quality Assurance, and Life Cycle Cost programs are interrelated with many of the logistics elements. Data gathered in one program shall be applied to the others. Analysis shall not be duplicated.

       e.   Analysis conducted during the Concept Exploration and early project phases is generally completed "in house." It may cover the primary system only and new or major subsystems. It is general and qualitative in nature. This analysis is typically limited to series 200 and 300 tasks outlined in enclosure (2). The more detailed tasks (series 300 and 400) are quantitative, typically contracted, and undertaken only when clear benefits to the Government exist. LSA is iterative in nature, progressing from general, qualitative examination towards detailed and quantitative analysis. This iterative and progressive structure permits the analysis to begin with limited investment and progress in detail, and cost, to the point that further analysis is not needed.

       f.   The LSA work breakdown numbering system identifies the various subsystems and their components. When developing the LSA numbering system, take care to ensure the ability to cross reference the project manager's and the future configuration manager's numbering systems. Data from the LSA analysis is used both in the system design and life cycle support systems.

       g.   Establish the necessary data bases to provide information. It is imperative that all interested parties (including sponsor and support programs) have access to <u>current</u> data. Where a contractor is providing analysis, consider purchasing on-line data base services versus data in a specific report format.

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4.   h.   Do not duplicate design and other support program analysis (e.g., safety, reliability and maintainability, manpower studies).

        i.   Determine the resources, both personnel and monetary, required to accomplish the LSA. Determine whether these resources are available or must be requested. Resource requirements may be extensive depending on the amount of tailoring.

        j.   Determine if the expected benefits justify the expenditure of the identified resources. Document this cost-benefit analysis.

5.   **ROLES AND RESPONSIBILITIES.** The project manager shall determine to what extent, if any, LSA shall be used in his/her project. This decision shall be noted in Chapter 5, Section D of the ILSP. Project managers of major systems acquisitions are assumed to have some knowledge of LSA. Project officers of non-major projects with limited knowledge of LSA may seek guidance from Commandant (G-AT and/or G-ELM). Managers of all projects must negotiate with various program managers for resources, including data in accordance with reference (b). Similarly, operational and support program managers shall discuss their analytical and data requirements relative to a project with the project manager. In the process of these negotiations, all parties should keep in mind that LSA contributes to supportability and life cycle management. In many cases, LSA data gathering efforts will alleviate the need for other analysis.

6.   **ACTION.** Area and district commanders, commanders of maintenance and logistics commands, unit commanding officers, and chiefs of offices and special staffs in Headquarters shall ensure that the objectives and guidance provided in this instruction are followed.

                              ROBERT T. NELSON
                              Chief of Staff

Encl: (1)   LSA Task Relationship (flow diagram)
       (2)   MIL-STD-1388-1A Task Guidelines
       (3)   Table of Acquisition Tasks With Related LSA Tasks

LSA TASK RELATIONSHIPS

PRECONCEPT
AND
CONCEPT DEVELOPMENT

DESIGN

PRODUCTION

FIELDING

☐ QUALITATIVE
IN HOUSE

☐ QUANTITATIVE
CONTRACTOR/SPECIAL TEAM

DATA DERIVED FROM LOWER NUMBERED TASKS PROVIDES INPUTS TO HIGHER NUMBERED TASKS.

TASKS 101, 102, AND 103 DEFINE THE MANAGEMENT OF THE LSA PROCESS. THEY ARE OMITTED FROM THE CHART TO CLARIFY SYSTEM ANALYSIS AND DATA FLOW.

MIL-STD-1388-1A TASK GUIDELINES

Task #   **Task Description**   **First Action**

101   **Develop LSA Strategy**   **Project Initiation**

Tailor MIL-STD-1388-1A tasks. Minimum requirement at Demonstration and Validation Phase decision is that no logistics analysis is required.

10   **Logistic Support Plan**   **Concept Exploration**

Where LSA strategy indicates all tasks to be completed in house, the LSA Support Plan can be incorporated into the Integrated Logistics Support Plan (ILSP). Where contractors will be involved, the LSA Plan can be incorporated as part of the Statement of Work.

103   **Program and Design Reviews**   **Concept Exploration**

This task can be incorporated into project managers' Integrated Logistics Support (ILS) review schedule.

201   **Use Study**   **Project Initiation**

When the Sponsors Requirements Document and Mission Needs Statement adequately cover logistics considerations, there may be no need for an additional study. The sponsor may find the analytical processes outlined in MIL-STD-1388-1 (series) beneficial in developing these documents. This is particularly true when these tasks are completed in conjunction with Task 301.

202   **Mission Hardware, Software,**   **System Design**
    and Support System
    Standardization

Subtasks associated with this task are frequently conducted as part of the design function. Support programs through their participation in the project matrix organization provide input to the design team. See reference (e).

Task #	Task Description	First Action
203	**Comparative Analysis**	**Project Initiation**

Generally this task is conducted by both the sponsor and the project manage/officer. As long as supportability issues are fully considered, there is usually no requirements for additional analysis to take place.

204	**Technological Opportunities**	**Concept Exploration**

In many cases, the reason for a new system is to update technology. Design teams have the lead. Support programs, through their participation in the matrix organization, shall advise the project manager of any technological innovations impacting supportability of the system/project.

205	**Supportability and Project** **Supportability Related** **Design Factors.**	**Concept Exploration**

This task shall be completed for most projects. Initial analysis may be general and limited to system level considerations. The earliest results shall be reflected in the Sponsors Requirements Document and Mission Needs Statement. Most support programs are represented on the Coast Guard Acquisition Council. This ensures review of these issues at key Decision Point 1. The project manager shall maintain and publish a list of supportability factors. Generally this will be found in the ILSP.

301	**Functional Requirements**	**Concept Exploration**

This analysis may follow from the Use Study of Mission Needs Statement. The task is iterative, developing from the requirement definition phases of the project. By maintaining a current list of functional requirements, the project manager will greatly facilitate many project tasks. These include conducting the Mission Functional Analysis and, later, writing specification and Statements of Work.

302	**Support System Alternatives**	**Concept Exploration**

The task shall be accomplished to the degree necessary to provide input into Task 303.

Task #	Task Description	First Action
303	**Evaluation of Alternatives and Tradeoff Analysis**	**Concept Exploration**

This task will typically be completed in house at the system and subsystem level. Tradeoff criteria must include operational availability and life cycle cost.

401	**Task Analysis**	**Demonstration/Validation**

To be completed when one centralized task analysis can provide data more economically than various independent support program analysis can. On subsystems new to the Coast Guard, a task analysis shall always be considered when more than one support program requires data (e.g., provisioning data, training development, and technical manuals.) Rather than three data gathering efforts, one task analysis is conducted.

402	**Early Fielding Analysis**	**Full Scale Development**

This is generally accomplished through normal project matrix organization activity.

403	**Post-Production Support**	**Production/Deployment**

Incorporated into the development of the Operational Logistics Support Plan (OLSP).

501	**Supportability Test**	**Project Initiation**

Supportability Testing shall be built into the Test and Evaluation Master Plan (TEMP) or other test and evaluation scheme. The analysis is documented in the Integrated Logistics Support Effectiveness Assessment Report.

TABLE OF ACQUISITION TASKS WITH RELATED LSA TASKS

Acquisition tasks may fulfill LSA requirements; LSA always supports acquisition

Acquisitions Tasks	**LSA Tasks**	
Mission analysis (part of PPB&E)		
Major System Acquisition Project Nomination Memorandum	n/a	
Mission Analysis Report	201	
Mission Need Statement including:		
Mission Functional Analysis (MFA)	301	
Cost Effectiveness Analysis (CEA) based on:		
System Performance Analysis (SPA)	201	
System Effectiveness Analysis (SEA)	201	
Life Cycle Cost Analysis (LCA)	201	
Preliminary Sponsors Requirements Document (PSRD)	301	
Sponsors Requirements Document (SRD)	301	
Feasibility Study Reports	203	205
Tradeoff Analysis	303	
Statement Of Work	all	
Contract Data Requirements	all	
Specifications	all	
Test and Evaluation Master Plan (TEMP)	501	
Project Management Plan (PMP)	102	
Project Base Line Document	205	
Acquisition Plan	102	

TABLE OF ACQUISITION TASKS WITH RELATED LSA TASKS - continued

Request for Proposal	all	
Mission Needs Statement Update	301	
Preliminary Design Report	n/a	
Functional Configuration Base Line Index (FCBI)	n/a	
Contract Design Report	n/a	
Allocated Base Line Configuration Index (ABCI)	n/a	
Product Base Line Configuration Index (PBCI)	n/a	
Integrated Logistics Management Support Plan (ILSP) developed during DEMVAL	all	
Update Project Management Plan	n/a	
Update Mission Needs Statement	n/a	
Demonstration and Validation Test Reports	402	501
Risk Assessment Report	303	
Developmental Test Report	501	
Operational Test Plan	n/a	
Operational Test Report	n/a	
Post-Contract Assessment Report	501	
Integrated Logistics Support Effectiveness Assessment Report	501	
Project Transition Plan	n/a	
Operational Logistics Support Plan	401	